

## STXL Series Microchip Lasers



We provide a wide variety of pulsed lasers, including Er:glass eye-safe lasers, microchip lasers, actively Q-switched lasers, etc. These lasers are available in various wavelengths at 1535nm, 1319nm, 1064nm, 1030nm, 946nm, 660nm, 532nm, 515nm, 473nm, 355nm, 343nm, 266nm, 257nm, 237nm, 213nm.

### Part numbering:

Series – Wavelength – Pulse Energy – Pulse Repetition Rate – Others

For example: STXL-A-1064nm-120uJ-2.5kHz, is a STXL-A series microchip laser with 1064nm wavelength, 120uJ energy and 2.5kHz pulse repetition rate.

### 1. STXL Series Sub-Nanosecond Microchip Lasers

The STXL series microchip lasers are passively Q-switched diode-pumped sub-nanosecond lasers, featuring narrow pulse width, high peak power high repetition rate and multiple wavelengths. We provide these microchip lasers at 1535nm, 1319nm, 1064nm, 1030nm, 946nm, 660nm, 532nm, 515nm, 473nm, 355nm, 343nm, 266nm, 257nm, 237nm and 213nm output wavelengths, with repetition rates up to 100kHz and pulse width from 300ps to 5ns. These compact and easy-to-integrate diode-pumped solid state lasers support internal and external triggering, are ideally suited for eye-safe ranging, atmospheric monitoring, underwater imaging, optical metrology, bio-medicine, micro-machining etc.

#### 1.1 STXL-A Series 1.5ns Microchip Lasers

STXL-A series microchip lasers are passively Q-switched diode-pumped solid-state lasers. The integrated design of diode-pumped module and laser crystal brings convenience to installation and integration due to the compact size. This series of lasers offer miniaturized drive boards specially for meteorological radar application, featuring small size, low power consumption, and can be used in high altitude, large temperature difference and other harsh environment. Custom dual wavelength laser solutions are available for STXL-A series, such as 1064nm & 532nm, 1064nm & 355nm or others.

**Applications:**

- LIDAR
- Laser ranging
- Atmospheric monitoring

**Key Features:**

- Pulse width down to 1.5ns
- Single pulse energy up to 200μJ
- Repetition rate up to 2.5kHz
- Spatial mode TEM00
- Sealed package, high reliability



<b>Optical Parameters</b>						
Wavelength(nm)	1064			532		
Repetition rate (kHz)	1*	2.5	2.5*	1*	2.5	2.5*
Average power (mW)	200	300	500	100	150	250
Pulse energy (μJ)	200	120	200	100	60	100
Pulse width (ps)	2000			1500		
Power stability (8h)	±3%					
Beam profile	TEM00					
Beam full divergence (typ., mrad)	Horizontal @1/e <sup>2</sup>		≤3		≤2.5	
	Vertical @1/e <sup>2</sup>		≤3		≤2.5	
Polarization ratio	>100:1					
<b>System Parameters</b>						
Supply power voltage	100-240VAC, 50/60Hz					
Control interface	RS232, USB					
Power consumption (W)	≤20	≤20	≤25	≤20	≤25	≤25
Power dimensions (W×H×L, mm)	90×32.6×120					
Laser head dimensions (W×H×L, mm)	45×30×120					
Operation temperature (°C)	15-35					
Storage temperature (°C)	0-60					

## 1.2 STXL-B Series 500ps Microchip Lasers

The STXL-B series microchip lasers feature narrow pulse width, providing quite high single pulse energy. These lasers are passively Q-switched diode-pumped solid-state lasers with no tail pulse, excellent beam quality and high reliability. The integrated design of diode-pumped module and laser crystal brings convenience to installation and integration due to the compact size. STXL-B series provides various wavelengths include 1064nm, 532nm, 355nm, 266nm and 213nm, and supports internal and external triggering. The internal hermetic module of the laser head is available to customers for tailor-made development.

**Applications:**

- Seed laser
- Micromachining
- Biomedicine
- Laser-induced breakdown spectroscopy (LIBS)
- Laser-induced plasma spectroscopy (LIPS)
- Laser-based ultrasound detection
- Nonlinear optics
- Laser ionization mass spectroscopy (LIMS)
- Laser-induced fluorescence (LIF)

**Key Features:**

- Single pulse energy up to 150μJ
- Spatial mode TEM00
- Sealed package, high reliability
- Polarization-stable



Optical Parameters							
Wavelength(nm)			1064	532	355	266	213
Repetition rate (kHz)			1	1	1*	1*	1*
Average power (mW)			150	75	30	12	4
Pulse energy ( $\mu$ J)			150	75	30	12	4
Pulse width (ps)			600	550	500	500	500
Power stability (8h)							$\pm 3\%$
Beam profile							TEM00
Beam full divergence (typ., mrad)	Horizontal @ $1/e^2$		7	6	5	4	4
	Vertical @ $1/e^2$		7	6	5	4	4
Polarization ratio							>100:1
System Parameters							
Supply power voltage							100-240 VAC, 50/60 Hz
Control interface							RS232, USB
Power consumption (W)							$\leq 25$
Power dimensions (W×H×L, mm)							168×88×140
Laser head dimensions (W×H×L, mm)							45×30×120
Operation temperature ( $^{\circ}$ C)							15-35
Storage temperature ( $^{\circ}$ C)							0-60

### 1.3 STXL-C Series 750ps Microchip Lasers

STXL-C series microchip lasers are compact, economical and reliable semiconductor pumped (diode pumped) passive Q-switch (passively Q-switched) solid state lasers independently developed by us, with stable output energy, high peak powers and excellent beam quality. The monolithic laser cavity is permanently aligned, therefore extremely stable. The system supports internal trigger and external trigger. This series of products include 5 wavelengths of 1064nm, 532nm, 355nm, 266nm and 213nm. The pulse duration (pulse width) can go down to 600ps (0.6ns). Various models operate with repetition rates up to 10kHz and the average power ranges from 3mW to 350mW. The reliable and robust microchip design is perfect for advanced OEM industrial applications.

#### Applications:

- Seed laser
- Micromachining
- Pump source for optical parametric oscillators
- Laser-induced breakdown spectroscopy (LIBS)
- Laser-based ultrasound detection
- Laser ionization mass spectroscopy (LIMS)
- Laser ranging
- Laser-induced fluorescence (LIF)
- Laser ultrasonic imaging



#### Key Features:

- Single pulse energy up to 120 $\mu$ J
- Repetition rate up to 10kHz
- Spatial mode TEM00
- Polarization-stable

Optical Parameters															
Wavelength (nm)	1064			532			355			266			213		
Repetition rate (kHz)	1	5	10	1	5	10	1*	5*	10*	1*	5*	10*	1*	5*	10*
Average power (mW)	120	350	300	60	175	150	15	50	60	8	35	30	3	10	10
Pulse energy ( $\mu$ J)	120	70	30	60	35	15	15	10	6	8	7	3	3	2	1
Pulse width (ps)	750			650			600			600			600		
Power stability (8h)													$\pm 3\%$		
Beam profile													TEM00		
Beam full divergence (typ., mrad)	Horizontal @ $1/e^2$	8	12	7	10		5	8	5	8	4	6			
	Vertical @ $1/e^2$	8	12	7	10		5	8	5	8	4	6			
Polarization ratio													>100:1		

System Parameters															
Supply power voltage	100-240 VAC, 50/60 Hz														
Control interface	RS232, USB														
Power consumption (W)	≤ 25	≤ 20	≤ 30	≤ 25	≤ 30	≤ 35	≤ 25	≤ 25	≤ 30	≤ 25	≤ 30	≤ 30	≤ 25	≤ 30	≤ 30
Power dimensions (W×H×L, mm)	168×88×140														
Laser head dimensions (W×H×L, mm)	45×30×120														
Operation temperature (°C)	15-35														
Storage temperature (°C)	0-60														

#### 1.4 STXL-D Series 300ps-2ns Low Repetition Rate OEM Microchip Lasers

STXL-D series microchip lasers are passively Q-switched diode-pumped solid-state lasers, featuring stable single pulse energy, excellent beam quality and no tail pulse. 300ps-2ns low-repetition-rate microchip lasers coming along with miniaturized OEM drive boards, are designed especially for medical aesthetics. These lasers are compact, easy-to-integrate, and offer outstanding long working time. We also provide isolators with corresponding wavelengths and HQF series high-energy laser products for customers.

##### Applications:

- Seed laser

##### Key Features:

- Pulse width down to 300ps
- Single pulse energy up to 50μJ
- Spatial mode TEM00
- Polarization-stable



Optical Parameters				
Wavelength(nm)	1064			
Repetition rate (kHz)	0.01			
Average power (mW)	1.8	4	1.8	1.5
Pulse energy (μJ)	180	400	180	150
Pulse width (ps)	2000	500	500	300
Power stability (8h)	±3%			
Beam profile	TEM00			
Beam full divergence (typ., mrad)	Horizontal @1/e <sup>2</sup>	7	7	9
	Vertical @1/e <sup>2</sup>	7	7	9
Polarization ratio	>100:1			
System Parameters				
Supply power voltage	≥5V 3A			
Control interface	IDC-8			
Power consumption (W)	≤15	≤30	≤15	≤15
Power dimensions (W×H×L, mm)	68×35×120			
Laser head dimensions (W×H×L, mm)	45×30×120			
Operation temperature (°C)	15-35			
Storage temperature (°C)	0-60			

#### 1.5 STXL-D Series 300ps Microchip Lasers

STXL-D series microchip lasers are passively Q-switched diode-pumped solid-state lasers, featuring stable single pulse energy, excellent beam quality and no tail pulse. The integrated design of diode-pumped module and laser crystal brings convenience to installation and integration due to the compact size. This series provides various wavelengths include 1064nm, 532nm, 355nm and 266nm, and supports internal and external triggering. The internal hermetic module of the laser head is available to

customers for tailor-made development. The STXL-D series is also available with OEM seed laser drivers.

**Applications:**

- Seed laser
- Micromachining
- Laser-induced breakdown spectroscopy (LIBS)
- Laser ionization mass spectroscopy (LIMS)
- Laser-induced fluorescence (LIF)
- Nonlinear optics

**Key Features:**

- Pulse width down to 300ps
- Single pulse energy up to 50μJ
- Repetition rate up to 10kHz
- Spatial mode TEM00
- Polarization-stable



Optical Parameters													
Wavelength (nm)		1064			532			355			266		
Repetition rate (kHz)		1	5	10	1	5	10	1*	5*	10*	1*	5*	10*
Average power (mW)		50	50	80	20	25	30	10	15	20	5	10	10
Pulse energy (μJ)		50	10	8	20	5	3	10	3	2	5	2	1
Pulse width (ps)		350			300			300			300		
Power stability (8h)		±3%											
Beam profile		TEM00											
Beam full divergence typ., mrad)	Horizontal @1/e <sup>2</sup>	12	16	10	14	8	12	8	12	8	12		
	Vertical @1/e <sup>2</sup>	12	16	10	14	8	12	8	12	8	12		
Polarization ratio		>100:1											
System Parameters													
Supply power voltage		100-240 VAC, 50/60 Hz											
Control interface		RS232, USB											
Power consumption (W)		≤25											
Power dimensions (W×H×L, mm)		168×88×140											
Laser dimensions (W×H×L, mm)		45×30×120											
Operation temperature (°C)		15-35											
Storage temperature (°C)		0-60											

**1.6 STXL-E Series Diode-pumped Solid-State Lasers**

STXL-E series lasers are passively Q-switched diode-pumped solid-state lasers. Comparing to the traditional microchip lasers, MCE series utilizes a split-cavity design, delivering high power, high repetition rate and large energy. With miniaturized drive circuit design, these low-power-consumption lasers are compact and easy-to-integrate. Standard package comes along with a 15x beam expander at 1064nm and 532nm wavelength. Customized specifications are available upon request.

**Applications:**

- Laser marking
- Laser etching
- Laser ablation
- LIDAR
- Laser Internal engraving

**Key Features:**

- Repetition rate up to 20kHz
- Average power up to 3W@1064nm
- Sealed package, high reliability



Optical Parameters						
Wavelength (nm)	1064			532		
Repetition rate (kHz)	2.5	5	7	2.5	5	7
Average power (mW)	1500	2000	2000	750	1000	1000
Pulse energy ( $\mu$ J)	600	400	280	300	200	140
Pulse width (ns)	3.5	6	8	3	5	7
Power stability (8h)	$\pm 3\%$					
Beam profile	TEM00					
Collimated beam diameter (mm)	$\approx 9$					
Beam divergence, full angle (typ., @ $1/e^2$ , mrad)	$\leq 1$					
Polarization ratio	$> 100:1$					
System Parameters						
Supply power voltage	12V, $> 180W$					
External trigger	gated, 5V TTL, drive high to enable					
Laser head dimensions (W×H×L, mm)	60×39×158					
Operation temperature ( $^{\circ}C$ , require air cooling)	15-35					
Storage temperature ( $^{\circ}C$ )	-40~60					

### 1.7 STXL-I Series 2.5ns Microchip Lasers

STXL-I series microchip lasers are compact, economical and reliable semiconductor pumped (diode pumped) passive Q-switch (passively Q-switched) solid state lasers independently developed by us, with stable output energy, high peak powers and excellent beam quality. The monolithic laser cavity is permanently aligned, therefore extremely stable. The system supports internal trigger and external trigger. This series of products includes three wavelengths of 946nm, 473nm and 237nm. The pulse duration (pulse width) can go down to 2000ps (2ns). Various models operate with repetition rates up to 5kHz and the average power ranges from 2mW to 75mW. The reliable and robust microchip design is perfect for advanced OEM industrial applications.

#### Applications:

- Laser-induced fluorescence (LIF)
- Laser-based ultrasound detection
- Laser ranging
- Raman spectroscopy

#### Key Features:

- Compact design, excellent stability
- Polarization-stable
- Repetition rate up to 5kHz
- Spatial mode TEM00





Optical Parameters						
Wavelength (nm)	946		473		237	
Repetition rate (kHz)	1	5	1	5	2*	
Average power (mW)	20	75	5	20	2	
Pulse energy ( $\mu$ J)	20	15	5	4	1	
Pulse width (ps)	2500		2000		1500	
Power stability (8h)	$\pm 3\%$					
Beam profile	TEM00					
Beam full divergence (typ., mrad)	Horizontal @ $1/e^2$	9	10	7	8	6
	Vertical @ $1/e^2$	9	10	7	8	6
Polarization ratio	>100:1					
System Parameters						
Supply power voltage	100-240 VAC, 50/60 Hz					
Control interface	RS232, USB					
Power consumption (W)	$\leq 15$	$\leq 30$	$\leq 15$	$\leq 30$	$\leq 25$	
Power dimensions (W×H×L, mm)	168×88×140					
Laser head dimensions (W×H×L, mm)	45×30×120					
Operation temperature ( $^{\circ}$ C)	15-35					
Storage temperature ( $^{\circ}$ C)	0-60					

### 1.8 STXL-J Series 1ns Microchip Lasers

#### Applications:

- Material micromachining
- Spectrum analysis
- LIDAR
- Pump source
- Biomedicine

#### Key Features:

- Pulse width down to 1ns
- Single pulse energy up to 100 $\mu$ J
- Repetition rate up to 2kHz
- Spatial mode TEM00



Optical Parameters										
Wavelength (nm)	1030		515		343			257		
Repetition rate (kHz)	1	2	1	2	0.2*	1*	2*	1*	2*	
Average power (mW)	100	160	40	60	6	20	30	8	10	
Pulse energy ( $\mu$ J)	100	80	40	30	30	20	15	8	5	
Pulse width (ps)	1000		900		800			800		
Power stability (8h)	$\pm 3\%$									
Beam profile	TEM00									
Beam full divergence (typ., mrad)	Horizontal @ $1/e^2$	6	8	4	5	3	3	4	2	3
	Vertical @ $1/e^2$	6	8	4	5	3	3	4	2	3
Polarization ratio	>100:1									
System Parameters										
Supply power voltage	100-240 VAC, 50/60 Hz									
Control interface	RS232, USB									
Power consumption (W)	$\leq 15$	$\leq 25$	$\leq 15$	$\leq 25$	$\leq 15$	$\leq 15$	$\leq 25$	$\leq 15$	$\leq 15$	$\leq 25$
Power dimensions (W×H×L, mm)	168×88×140									
Laser head dimensions (W×H×L, mm)	45×30×120									
Operation temperature ( $^{\circ}$ C)	15-35									
Storage temperature ( $^{\circ}$ C)	0-60									

### 1.9 STXL-L Series 2.5ns Microchip Lasers

STXL-L series microchip lasers are compact, economical and reliable semiconductor pumped (diode pumped) passive Q-switch (passively Q-switched) solid state lasers independently developed by us, with stable output energy, high peak powers and excellent beam quality. The monolithic laser cavity is permanently aligned, therefore extremely stable. The system supports internal trigger and external trigger. This series of products includes two wavelengths of 1319nm and 660nm. The pulse duration (pulse width) can go down to 2500ps(2.5ns). Various models operate with repetition rates up to 2kHz and the average power ranges from 10mW to 80mW. The reliable and robust microchip design is perfect for advanced OEM industrial applications.

#### Applications:

- Photodynamic therapy
- Environmental monitoring
- Laser remote sensing
- LIDAR
- Spectroscopy
- Laser display



#### Key Features:

- Pulse width down to 2.5ns
- Single pulse energy up to 50 $\mu$ J
- Repetition rate up to 2kHz
- Spatial mode TEM00
- Sealed package, high reliability

Optical Parameters				
Wavelength (nm)	1319		660	
Repetition rate (kHz)	0.1*	1*	0.1*	1*
Average power (mW)	8	50	1	6
Pulse energy ( $\mu$ J)	80	50	10	6
Pulse width (ps)	2500		2000	
Power stability (8h)	$\pm 3\%$			
Beam profile	TEM00			
Beam full divergence (typ., mrad)	Horizontal @ $1/e^2$	10	6	
	Vertical @ $1/e^2$	10	6	
Polarization ratio	>100:1			
System Parameters				



Supply power voltage	100-240 VAC,50/60 Hz			
Control interface	RS232, USB			
Power consumption (W)	≤20	≤45	≤20	≤45
Power dimensions (W×H×L, mm)	168×88×140			
Laser head dimensions (W×H×L, mm)	45×30×120			
Operation temperature (°C)	15-35			
Storage temperature (°C)	0-60			

### 1.10 STXL-O Series Energy Adjustable Fiber Pigtailed Microchip Lasers

STXL-O series sub-nanosecond fiber pigtailed microchip lasers are composed of integrated electronic control modules for energy adjustment, photodetector module and laser drive board, with a 200um 0.22NA fiber. This super compact laser is plug and play, making it an ideal source for a variety of applications.

#### Applications:

- Laser engraving
- Laser-induced breakdown spectroscopy (LIBS)
- Laser photoluminescence
- Laser marking
- Laser capture microdissection
- Laser-induced fluorescence (LIF)
- Laser mass spectroscopy
- Ultraviolet microscopy
- Raman spectroscopy
- LIDAR
- Thin film scribing and processing
- Semiconductor inspection
- Photoacoustic imaging
- Laser spark plug
- Laser remote sensing



#### Key Features:

- Pulse width <1ns
- Repetition rate variable from 1-200Hz
- Energy adjustable by PC control
- Photodiode output signal with time jitter < 00ps
- Sealed package, high reliability
- Plug and play, include PC control software

Optical Parameters				
Wavelength (nm)	1064	532	355	266
Repetition rate (Hz)	1-200			
Max. energy @ Fiber coupled output (μJ)	50	25	25	10
Pulse width (ns)	≤1			
Energy stability (RMS)	≤3%			
Adjusting precision of output energy	≤2%			
Polarization	≥100:1			
Fiber	200μm/0.22NA			
System Parameters				
Supply power voltage	24V DC			
Modulation input	TTL 0-5V, SMB input			
Control interface	RS-232			
Peak Power consumption (W)	<20			
Average power consumption (W)	<10			
Laser dimensions (W×H×L, mm)	82x79x250			
Operation temperature (°C)	10-40			
Storage temperature (°C)	-10-60			

### 1.11 STXL-O Series Energy Adjustable Free Space Microchip Lasers

STXL-O series energy adjustable sub-nanosecond microchip lasers with free space output, are composed of integrated electronic control modules for energy adjustment, photodetector module and laser drive board. This laser features compact design, plug and play, and free space output with a beam divergence lower than 2mrad.

#### Applications:

- Laser engraving
- Laser-induced breakdown spectroscopy (LIBS)
- Laser photoluminescence
- Laser marking
- Laser capture microdissection
- Laser-induced fluorescence (LIF)
- Laser mass spectroscopy
- Ultraviolet microscopy
- Raman spectroscopy
- LIDAR
- Thin film scribing and processing
- Semiconductor inspection
- Photoacoustic imaging
- Laser spark plug
- Laser remote sensing



#### Key Features:

- Pulse width <1ns
- Repetition rate variable from 1-200Hz
- Energy adjustable by PC control
- Photodiode output signal with time jitter <100ps
- Sealed package, high reliability
- Plug and play, include PC control software

Optical Parameters				
Wavelength (nm)	1064	532	355	266
Repetition rate (Hz)	1-200			
Max. energy @ free space output (μJ)	60	30	25	15
Pulse width (ns)	≤1			
Energy stability (RMS)	≤3%			
Adjusting precision of output energy	≤2%			
Beam profile (Free space output)	TEM00			
Full angle divergence	Horizontal @1/e <sup>2</sup>	≤2		
	Typ. (mrad)	Vertical @1/e <sup>2</sup>	≤2	
Polarization	≥100:1			
System Parameters				
Supply power voltage	24V DC			
Modulation input	TTL 0-5V, SMB input			
Control interface	RS-232			
Peak power consumption (W)	<20			
Average power consumption (W)	<10			
Laser dimensions (W×H×L, mm)	82x79x190			
Operation temperature (°C)	10-40			
Storage temperature (°C)	0-60			

### 1.12 STXL-M Series Microchip Lasers

STXL-M series microchip lasers are passively Q-switched diode-pumped solid-state lasers, featuring high energy, good value and low power consumption. The integrated design of diode-pumped module and laser crystal results in the compactness. And water cooling is not required for this laser. The series

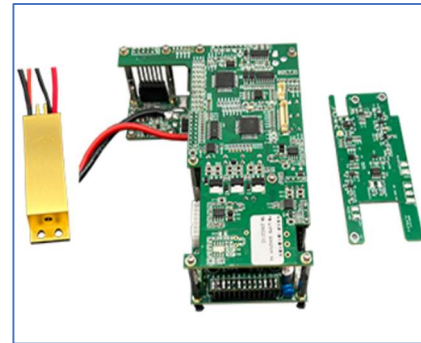
is also available with miniaturized drive boards for OEM control or PD signal for applications include LIBS and laser ablation, which is easy to install and integrate, and is suitable for handheld devices.

**Applications:**

- Laser ablation
- Laser-induced breakdown
- spectroscopy (LIBS)

**Key Features:**

- Pulse width <7ns
- Pulse energy up to 20mJ
- Built-in PD, drive board for PD available
- Compact size, no water cooling required
- Suitable for handheld devices
- Cost effective



Optical Parameters		
Wavelength (nm)		1064
Repetition rate (Hz)		10
Pulse energy (mJ)		>10
Pulse width (ns)		<10
Power stability (RMS)		<1.5%
Pump pulse width(μs)		≤250
Full angle divergence Typ. (mrad)	Horizontal @1/e <sup>2</sup>	3
	Vertical @1/e <sup>2</sup>	3
Cooling method		Air cooling
Laser dimensions (W×H×L, mm)		17×16.1×58.5 (customizable)
Operation temperature (°C)		15-35
Storage temperature (°C)		0-60
Driver Parameters		
Supply power voltage		24VDC
Control interface		J30J-15T
Power consumption (W)		15W (MAX)
*Drive board dimensions (W×H×L, mm)		90×35×120
Trigger mode		Trigger In/Out
PD Driver Parameters		
Supply power voltage		5VDC
Trigger output		SMA connector
Output level		3V@50Ω
Drive board dimensions (W×H×L, mm)		39×10×86(customizable)

**2. STXL Series Er:glass Lasers**

1535nm eye-safe laser is ultra-compact diode-pumped microchip laser based on Er:glass. Utilizing laser diode packaging technology, the output energy of this laser is up to 1000uJ, making it possible to detect targets within a radius of 500m-20km, and widely used in compact eye-safe range finder.

**2.1 STXL 1535nm 100~300μJ Microchip Lasers with PIN**

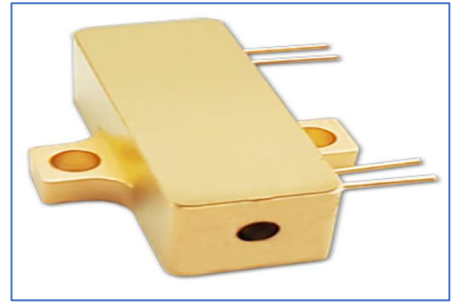
Our 1535nm microchip laser modules with photodetector (PIN) operate in the eye safe wavelength regime, have great advantages in applications including laser ranging and LiDAR. This series of laser modules are equipped with integrated photodetector (PIN), providing PD output signal, no tail pulse, stable pulse energy and excellent beam profile. The integrated design of diode-pumped module and laser crystal brings convenience to installation and integration due to the compact size.

**Applications:**

- Laser rangefinder
- Meteorological radar

**Key Features:**

- Integrated PIN, provides PD output signal
- Passively Q-switched, Er:glass
- Eye-safe
- Extremely light



Optical Parameters			
Wavelength (nm)	1535		
Pulse energy (μJ)	100	200	300
Pulse width (ns)	≤5		
Repetition rate (Hz)	10		
Operating current (A)	8	10	12
PIN amplitude (V@50Ω resistance)	2-3		
Beam full divergence Typ.(mrad)	10		8
Beam profile	TEM00		
Weight (g)	8		10
Dimensions (W×H×L, mm)	21x8x7		25x8x7
Operation temperature (°C)	-40~65		
Storage temperature (°C)	-55~80		

**2.2 STXL High Repetition Rate 1535nm Microchip Laser Modules with PIN**

High repetition rate 1535nm microchip laser modules with photodetector (PIN) are Er: glass eye-safe lasers operating at 1-10kHz. This series of laser modules are equipped with integrated photodetector (PIN), which is able to provide PD output signal. Utilizing the semiconductor laser packaging technology, these lasers feature compact size, sufficient performance stability and excellent beam quality.

**Applications:**

- Laser ranging
- Laser remote sensing
- Lidar

**Key Features:**

- Integrated PIN, provides PD output signal
- Passively Q-switched, Er:glass
- Eye-safe
- Wide temperature operation



Wavelength (nm)	1535			
Pulse energy (μJ)	40	20	10	5
Pulse width (ns)	≤5	≤6	≤8	≤10
Repetition rate (kHz)	1	2.5	5	10
Operating current (A)	5			
PIN amplitude (V@50Ω resistance)	2			
Beam full divergence (typ., mrad)	≤16	≤17	≤18	≤20
Beam profile	TEM00			
Weight (g)	7			
Dimensions (W×H×L, mm)	21x8x7			
Operation temperature (°C)	-40~65			
Storage temperature (°C)	-55~80			

**2.3 STXL High Repetition Rate 1535nm Erbium Glass Laser Modules With Beam Expander**

High repetition rate 1535nm Erbium glass laser module with beam expander is an integrated laser module composed of high repetition rate erbium glass microchip laser, beam expander and photodetector (PIN) independently developed by us, which is professionally used in laser ranging, altimeter, lidar and other applications. The STXL-1535-40X series of laser modules are specified to deliver 5-40 $\mu$ J at 1535nm with high repetition rate of 1-10kHz and small divergence angle, and provide PD output signal, which has the characteristics of small size, high reliability and wide temperature operation.

**Applications:**

- Laser ranging
- Laser remote sensing
- Lidar

**Key Features:**

- 1535nm, eye-safe
- High repetition rate
- Divergence angle <0.5mrad
- Integrated PD
- Compact structure
- High reliability



Optical Parameter				
Wavelength (nm)	1535			
Repetition rate (kHz)	1	2.5	5	10
Output power ( $\mu$ J)	40	20	10	5
Pulse width (ns)	5	6	8	10
Beam diameter (mm)	12	12	12	12
Beam full divergence Typ. (mrad)	0.4	0.4	0.45	0.45
Magnification	40X			
System Parameters				
Operating current (A)	6			
Operating voltage (V)	1.8			
Vibration	5Hz, 2.5g			
Shock	Axial 100g, 1ms			
Operating temperature ( $^{\circ}$ C)	-40~65			
Storage temperature ( $^{\circ}$ C)	-55~80			
Storage relative humidity	$\leq$ 85%			
Operating lifetime (H)	$\geq$ 5000			

**2.4 STXL-F Series Microchip Lasers**

Er:glass Eye-safe Lasers are diode pumped, water-free, passively Q-switched lasers independently developed by us, combine eye-safe wavelength operation with high peak power, short pulse duration (pulse width), and diffraction limited beam quality to deliver unmatched size, weight and power. Our Eye-safe DPSS Lasers operate at 1535nm, in addition to being called 1535nm lasers, these lasers are also called 1540nm lasers, 1534nm lasers, 1.54 $\mu$ m lasers or 1.54 $\mu$ m lasers, widely used as the emission light source of rangefinder. At this wavelength, eye-safe laser ranging systems can be easily configured without compromise to beam power or quality. This makes laser ranging applications safer for customers. Most of these lasers are operational over a wide temperature range from -40 $^{\circ}$ C to 60 $^{\circ}$ C, with lifetime exceeding 60 million shots.

**Applications:**

- Lidar
- Laser ranging

**Key Features:**

- 1535nm, eye safe
- Pulse width down to 5ns
- Single pulse energy up to 400μJ
- Repetition rate up to 1kHz



Optical Parameters											
Wavelength (nm)		1535									
Repetition rate (kHz)		0.01	0.01	0.01	0.01	0.005	0.005	1	2.5	5	10
Pulse energy (μJ)		100	200	300	500	700	1000	40	20	10	5
Pulse width (ns)		≤5	≤5	≤5	≤6	≤7	≤7	≤5	≤6	≤8	≤10
Power stability (8h)		3%									
Beam profile		TEM00									
Full angle divergence Typ. (mrad)	Horizontal @1/e <sup>2</sup>	≤12	≤10	≤10	≤8	≤7	≤7	≤16	≤17	≤18	≤20
	Vertical @1/e <sup>2</sup>	≤12	≤10	≤10	≤8	≤7	≤7	≤16	≤17	≤18	≤18
System Parameters											
Supply power voltage		100-240 VAC, 50/60 Hz									
Modulation input		TTL0-5V, SMA input									
Control interface		RS232, USB									
Power consumption (W)		≤3					≤7				
Power dimensions (W×H×L, mm)		168×88×140									
Laser head dimensions (W×H×L, mm)		45×30×120									
Operation temperature (°C)		15-35									
Storage temperature (°C)		0-60									

**2.5 STXL High Repetition Rate 1535nm Microchip Laser Module**

Er:glass eye-safe lasers are diode pumped, water-free, passively Q-switched lasers independently developed by us, combine eye-safe wavelength operation with high peak power, short pulse duration (pulse width), and diffraction limited beam quality to deliver unmatched size, weight and power. Our eye-safe DPSS lasers operate at 1535nm, in addition to being called 1535nm lasers, these lasers are also called 1540nm lasers, 1534nm lasers, 1.54um lasers or 1.54μm lasers, widely used as the emission light source of rangefinder. At this wavelength, eye-safe laser ranging systems can be easily configured without compromise to beam power or quality. This makes laser ranging applications safer for customers. Most of these lasers are operational over a wide temperature range from -40°C to 60°C, with lifetime exceeding 60 million shots.

**Applications:**

- Obstacle avoidance radar
- Meteorological radar
- Laser range finder

**Key Features:**

- Passively Q-switched, Er:glass
- Eye-safe
- Extremely light (about 10g)
- Wide operating temperature range



Wavelength (nm)		1535			
Pulse energy (μJ)		40	20	10	5
Repetition rate (kHz)		1	2.5	5	10



Pulse width (ns)	≤5	≤6	≤8	≤10
Operating current (A)	5			
Operating voltage (V)	2			
Beam diameter (mm)	0.3			
Beam full divergence (typ., mrad)	≤16	≤17	≤18	≤20
Beam pointing	< 0.2°			
Beam profile	TEM00			
Weight (g)	≤10			
Dimensions (W×H×L, mm)	21x8x7			
Operation temperature (°C)	-40~65			
Storage temperature (°C)	-55~80			

## 2.6 STXL 100~300μJ 1535nm Microchip Laser Modules

Er:glass eye-safe lasers are diode pumped, water-free, passively Q-switched lasers combined eye-safe wavelength operation with high peak power, short pulse duration (pulse width), and diffraction limited beam quality to deliver unmatched size, weight and power. Our eye-safe DPSS lasers operate at 1535nm, in addition to being called 1535nm lasers, these lasers are also called 1540nm lasers, 1534nm lasers, 1.54um lasers or 1.54μm lasers, widely used as the emission light source of rangefinder. At this wavelength, eye-safe laser ranging systems can be easily configured without compromise to beam power or quality. This makes laser ranging applications safer for customers. Most of these lasers are operational over a wide temperature range from -40°C to 60°C, with lifetime exceeding 60 million shots.

### Applications:

- Laser range finder
- Meteorological radar

### Key Features:

- Passively Q-switched, Er:glass
- Eye-safe
- Extremely light
- Super compact design
- Wide operating temperature range



Wavelength (nm)	1535		
Pulse energy (μJ)	100	200	300
Pulse width (ns)	≤5		
Repetition rate (Hz)	10		
Operating current (A)	7	10	12
Beam full divergence (typ., mrad)	10		
Beam profile	TEM00		
Weight (g)	7	10	12
Dimensions (W×H×L, mm)	21x8x7		25x8x7
Operation temperature (°C)	-40~65		
Storage temperature (°C)	-55~80		

## 2.7 STXL High Energy 1535nm Microchip Laser Modules

Er:glass eye-safe lasers are diode pumped, water-free, passively Q-switched lasers combined eye-safe wavelength operation with high peak power, short pulse duration (pulse width), and diffraction limited beam quality to deliver unmatched size, weight and power. Our eye-safe DPSS lasers operate at 1535nm, in addition to being called 1535nm lasers, these lasers are also called 1540nm lasers, 1534nm lasers, 1.54um lasers or 1.54μm lasers, widely used as the emission light source of rangefinder. At this wavelength, eye-safe laser ranging systems can be easily configured without compromise to beam power or quality. This makes laser ranging applications safer for customers. Most of these lasers are operational over a wide temperature range from -40°C to 60°C, with lifetime exceeding 60 million shots.

**Applications:**

- Laser range finder
- Altimeter
- LIBS

**Key Features:**

- Peak power >150kW
- Eye-safe
- No temperature controlling
- Low operating current
- Compact size



Wavelength (nm)	1535	
Pulse energy (μJ)	800	1000
Pulse width (ns)	≤7	≤8
Repetition rate (Hz)	10	5
Operating current (A)	30	
Beam full divergence (typ., mrad)	≤7	
Beam profile	TEM00	
Weight (g)	20	
Dimensions (W×H×L, mm)	38x9x7.7	
Operation temperature (°C)	-40~65	
Storage temperature (°C)	-55~80	

## 2.8 STXL 500μJ High Energy 1535nm Microchip Laser Modules

Er:glass eye-safe lasers are diode pumped, water-free, passively Q-switched lasers combined eye-safe wavelength operation with high peak power, short pulse duration (pulse width), and diffraction limited beam quality to deliver unmatched size, weight and power. Our Eye-safe DPSS Lasers operate at 1535nm, in addition to being called 1535nm lasers, these lasers are also called 1540nm lasers, 1534nm lasers, 1.54μm lasers or 1.54μm lasers, widely used as the emission light source of rangefinder. At this wavelength, eye-safe laser ranging systems can be easily configured without compromise to beam power or quality. This makes laser ranging applications safer for customers. Most of these lasers are operational over a wide temperature range from -40°C to 60°C, with lifetime exceeding 60 million shots.

**Applications:**

- Laser range finder
- Meteorological radar

**Key Features:**

- Passively Q-switched, Er:glass
- Eye-safe
- Extremely light
- Super compact design
- Wide operating temperature range



Wavelength (nm)	1535
Pulse energy (μJ)	500
Pulse width (ns)	≤6
Repetition rate (Hz)	10
Operating current (A)	20
Beam full divergence (typ., mrad)	6
Beam profile	TEM00
Weight (g)	13
Dimensions (W×H×L, mm)	32x8x7
Operation temperature (°C)	-40~65
Storage temperature (°C)	-55~80

### 3. STXL-H Series 300ps Single Longitudinal Mode Microchip Lasers

STXL-H series single longitudinal mode (SLM) microchip lasers are compact, economical and reliable semiconductor pumped (diode pumped) passive Q-switch (passively Q-switched) solid state lasers with stable output energy, high peak power and excellent beam quality. The monolithic laser cavity is permanently aligned, therefore extremely stable. The system supports internal trigger and external trigger. This series of products produce the single longitudinal mode 1064nm, 532nm, 355nm, 266nm and 213nm radiation with a long lifetime. The pulse duration (pulse width) can go down to 300ps (0.3ns). Various models operate with repetition rates up to 50kHz and the average power ranges from 2mW to 100mW. The reliable and robust microchip design is perfect for advanced OEM industrial applications.

#### Applications:

- Seed laser
- Micromachining
- Raman spectroscopy
- Laser ranging
- Laser-induced fluorescence (LIF)
- Laser ultrasonic imaging
- Time of flight mass spectrometer (TOFMS)
- Photolithography



#### Key Features:

- Pulse width down to 300ps
- High energy stability
- Repetition rate up to 100kHz
- Spatial mode TEM00
- Polarization-stable

Optical Parameters							
Wavelength (nm)		1064			532		
Repetition rate (kHz)		20	50	100	20	50	100
Average power (mW)		60	100	100	30	50	30
Pulse energy (μJ)		3	2	1	1.5	1	0.3
Pulse width (ps)		350		500	300		450
Power stability (8h)		±3%					
Beam profile		TEM00					
Beam full divergence (typ., mrad)	Horizontal @1/e <sup>2</sup>	20		30	16		25
	Vertical @1/e <sup>2</sup>	20		30	16		25
Polarization ratio		>100:1					
System Parameters							
Supply power voltage		100-240 VAC, 50/60 Hz					
Control interface		RS232, USB					
Power consumption (W)		≤35	≤40	≤40	≤35	≤40	≤40
Power dimensions (W×H×L, mm)		168×88×140					
Laser head dimensions (W×H×L, mm)		45×30×120					
Operation temperature (°C)		15-35					
Storage temperature (°C)		0-60					

## SLY Series 1535nm Erbium-Doped Glass Lasers



Our SLY series erbium-doped glass lasers can be used within human eye safety area, easy to control, highly efficient and have a long lifetime. These lasers are available in various wavelengths at 1535 and 1537nm.

#### Features:

- Human eye safety
- Small size and light weight
- High photoelectric conversion efficiency
- Adapt to the harsh operating environment

#### Applications:

- Laser Ranging
- LIDAR
- Laser Communication

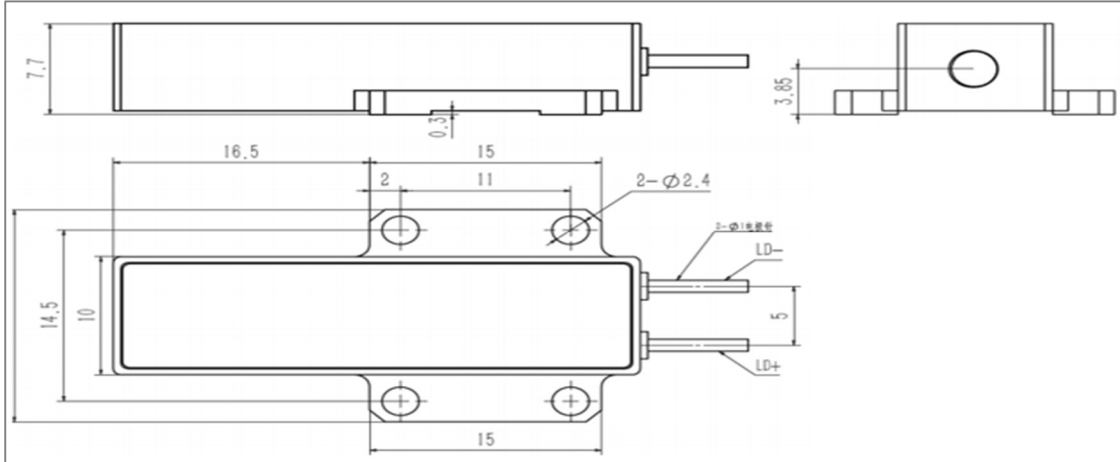
### 1. A1 Series Er Glass Lasers SLY-1535-xxx-A1



Parameters	SLY-1535-200-A1	SLY-1535-300-A1	SLY-1535-400-A1
Wavelength	1535nm		
Pulsed width (FWHM)	3ns - 6ns		
Pulsed energy ( $\mu$ J)	200	300	400
Peak Power (kw)	50	65	80
Energy Stability	$\leq 5\%$		
Beam-divergence angle	$\leq 12$ mrad		
Working Voltage	$< 2V$		
Working current (A)	12	14	15
Working Frequency	1Hz – 10Hz		
Pulsed Width	1ms -2.5ms		

Working temperature	-40°C - 65°C
Storage temperature	-50°C - 75°C
Life Time	10000000 times
Weight	<10g

Dimension of SLY-1535-xxx-A1:



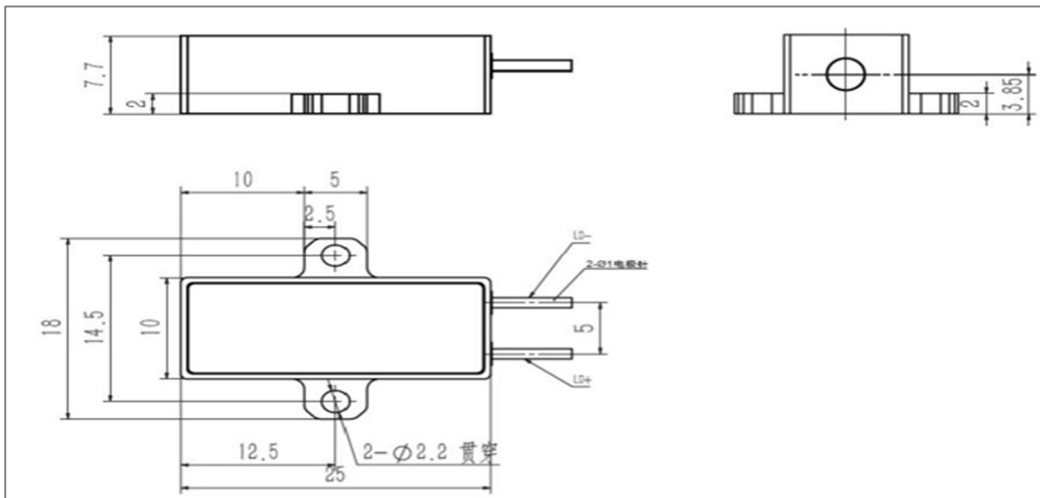
Remark: xxx: pulsed energy ( $\mu\text{J}$ )

## 2. A3 Series Er Glass Lasers SLY-1535-xxx-A3



Parameters	SLY-1535-100-A3	SLY-1535-200-A3
Wavelength	1535nm	
Pulsed width (FWHM)	3ns - 6ns	
Pulsed energy ( $\mu\text{J}$ )	100	200
Peak Power (kw)	25	50
Energy Stability	$\leq 5\%$	
Beam-divergence angle	$\leq 12\text{mrad}$	
Working Voltage	$< 2\text{V}$	
Working current (A)	6	12
Working Frequency	1Hz - 10Hz	
Pulsed Width	1ms - 2.5ms	
Working temperature	-40°C - 65°C	
Storage temperature	-50°C - 75°C	
Life Time	10000000 times	
Weight	<10g	

Dimension of SLY-1535-xxx-A3:



Remark: xxx: pulsed energy ( $\mu\text{J}$ )

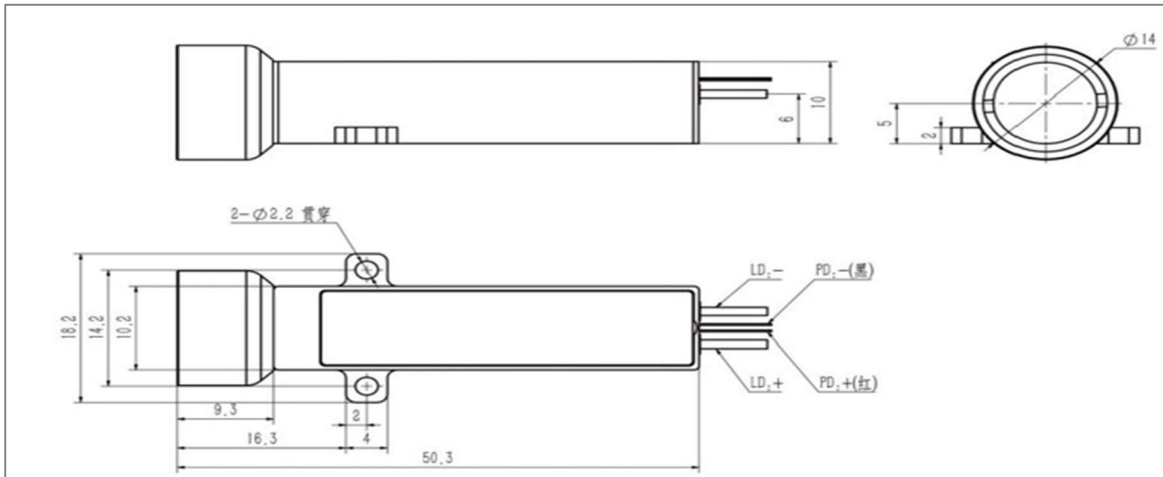
### 3. A4 Series Er Glass Lasers SLY-1535-xxx-A4



Parameters	SLY-1535-200-A4	SLY-1535-300-A4	SLY-1535-400-A4
Wavelength	1535nm		
Pulsed width (FWHM)	3ns - 6ns		
Pulsed energy ( $\mu\text{J}$ )	200	300	400
Peak Power (kw)	50	65	80
Energy Stability	$\leq 5\%$		
Beam-divergence angle	$\leq 0.5\text{mrad}$		
Working Voltage	2V		
Working current (A)	12	14	15
Working Frequency	1Hz - 10Hz		
Pulsed Width	1ms - 2.5ms		
Working temperature	$-40^{\circ}\text{C} - 65^{\circ}\text{C}$		
Storage temperature	$-50^{\circ}\text{C} - 75^{\circ}\text{C}$		
Life Time	10000000 times		
Weight	$< 20\text{g}$		



Dimension of SLY-1535-xxx-A4:



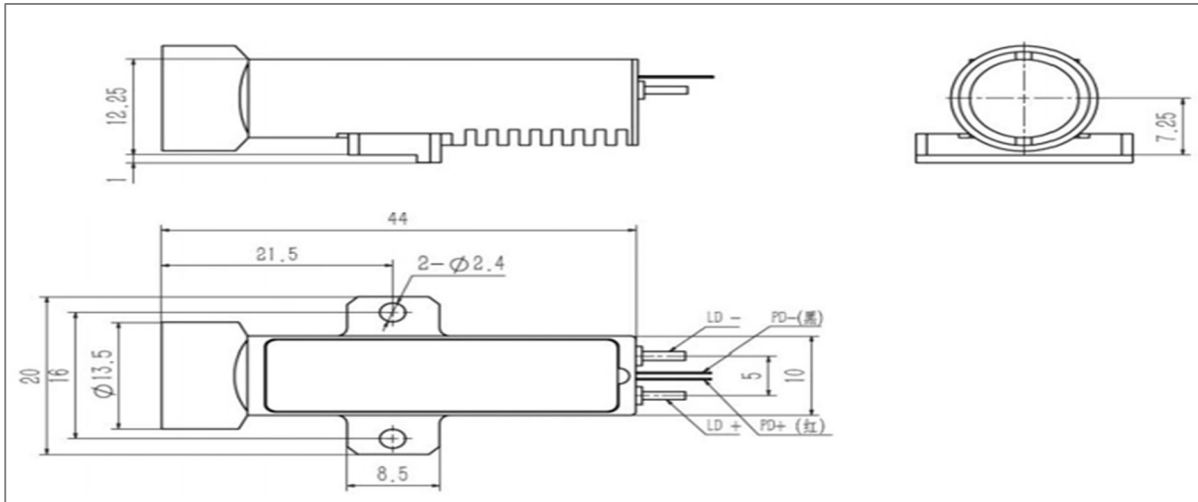
Remark: xxx: pulsed energy ( $\mu\text{J}$ )

#### 4. A5 Series Er Glass Lasers SLY-1535-xxx-A5



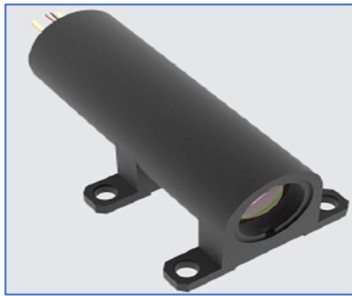
Parameters	SLY-1535-100-A5	SLY-1535-200-A5
Wavelength	1535nm	
Pulsed width (FWHM)	3ns - 6ns	
Pulsed energy ( $\mu\text{J}$ )	100	200
Peak Power (kw)	25	50
Energy Stability	$\leq 5\%$	
Beam-divergence angle	$\leq 0.5\text{mrad}$	
Working Voltage	$< 2\text{V}$	
Working current (A)	6	12
Working Frequency	1Hz - 10Hz	
Pulsed Width	1ms - 2.5ms	
Working temperature	$-40^{\circ}\text{C} - 65^{\circ}\text{C}$	
Storage temperature	$-50^{\circ}\text{C} - 75^{\circ}\text{C}$	
Life Time	10000000 times	
Weight	$< 20\text{g}$	

Dimension of SLY-1535-xxx-A5:



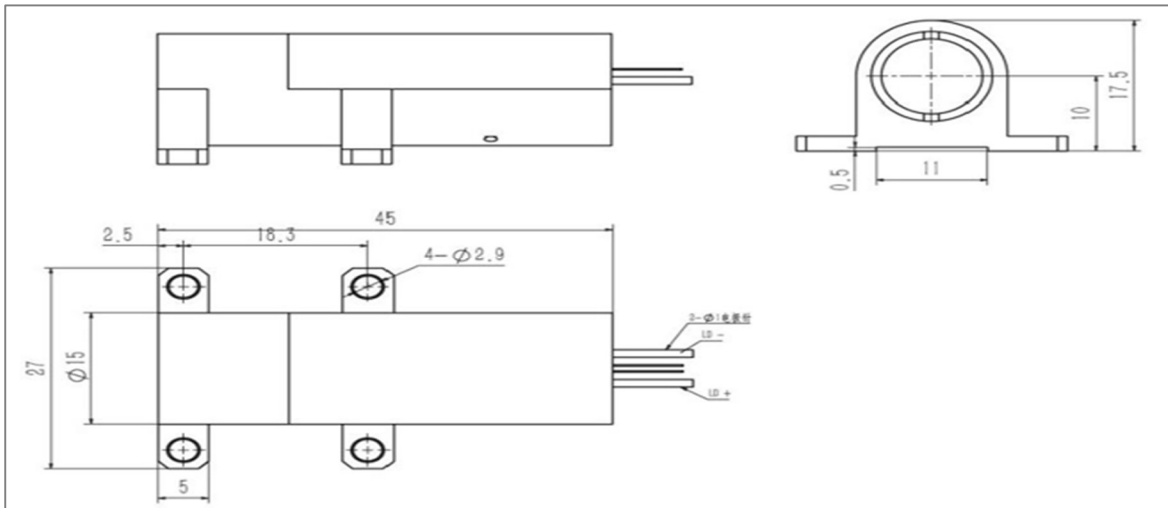
Remark: xxx: pulsed energy ( $\mu\text{J}$ )

### 5. A6 Series Er Glass Lasers SLY-1535-40-A6

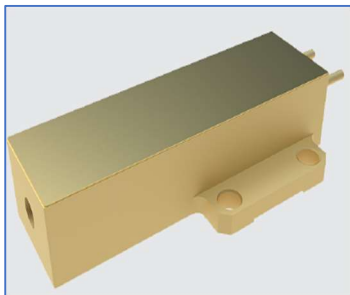


Parameters	SLY-1535-40-A6
Wavelength	1535nm
Pulsed width (FWHM)	3ns - 6ns
Pulsed energy ( $\mu\text{J}$ )	40
Peak Power (kw)	10
Energy Stability	$\leq 5\%$
Beam-divergence angle	$\leq 0.5\text{mrad}$
Working Voltage	2V
Working current (A)	4
Working Frequency	1000Hz
Pulsed Width	0.2ms – 0.4ms
Working temperature	$-40^{\circ}\text{C} - 65^{\circ}\text{C}$
Storage temperature	$-50^{\circ}\text{C} - 75^{\circ}\text{C}$
Life Time	10000000 times
Weight	<20g

Dimension of SLY-1535-40-A6:

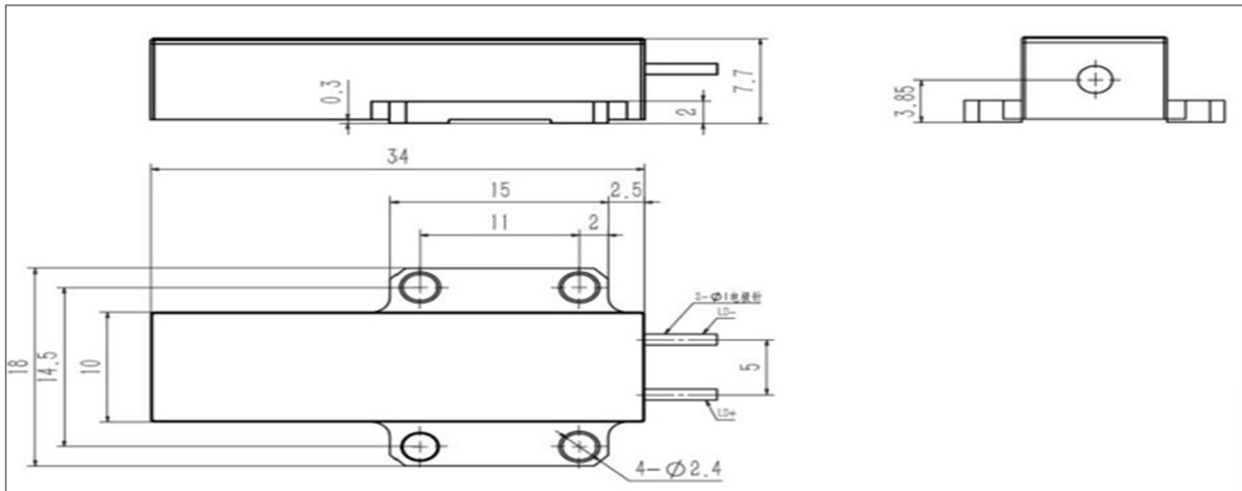


### 6. C1 Series Er Glass Lasers SLY-1535-xxx-C1

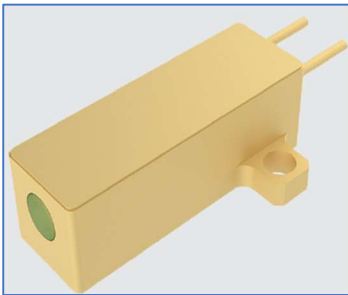


Parameters	SLY-1535-xxx-C1	
Wavelength	1535nm	
Pulsed width (FWHM)	4ns - 6ns	
Pulsed energy (μJ)	400	500
Peak Power (kw)	80	100
Energy Stability	≤5%	
Beam-divergence angle	≤15mrad	
Working Voltage	2V	
Working current (A)	15	18
Working Frequency	1Hz – 10Hz	
Pulsed Width	1ms – 2.5ms	
Working temperature	-40°C - 65°C	
Storage temperature	-50°C - 75°C	
Life Time	10000000 times	
Weight	<20g	

Dimension of SLY-1535-xxx-C1:

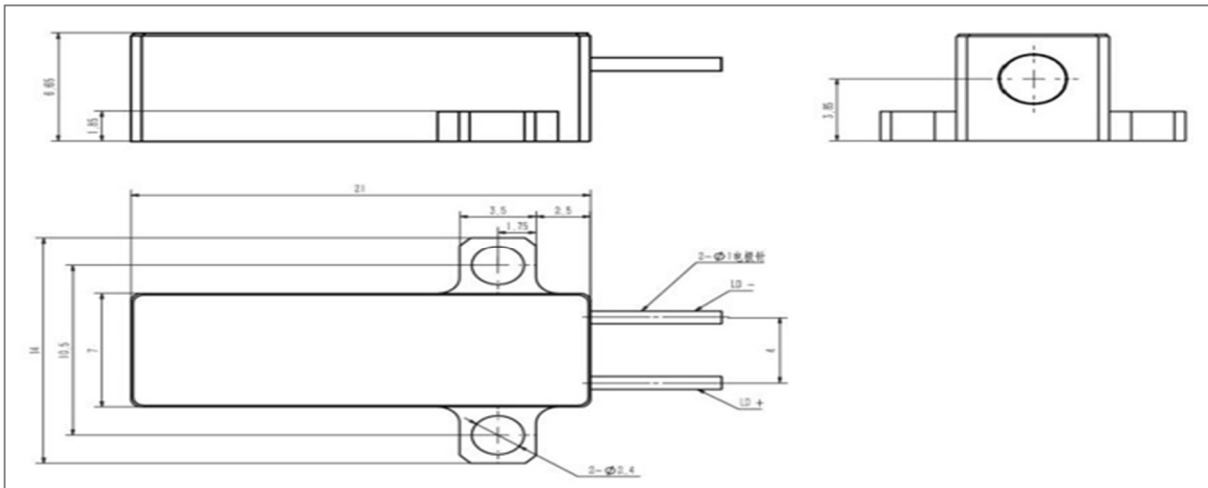


### 7. C2 Series Er Glass Lasers SLY-1535-40-C2

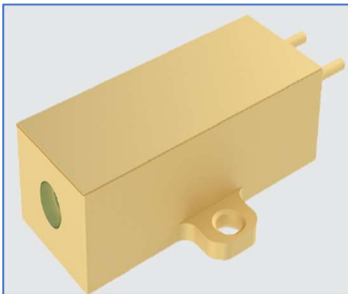


Parameters	SLY-1535-40-C2
Wavelength	1535nm
Pulsed width (FWHM)	3ns - 5ns
Pulsed energy ( $\mu$ J)	40
Peak Power (kw)	10
Energy Stability	$\leq 5\%$
Beam-divergence angle	$\leq 15$ mrad
Working Voltage	2V
Working current (A)	4
Working Frequency	1000Hz
Pulsed Width	0.2ms - 0.4ms
Working temperature	-40°C - 65°C
Storage temperature	-50°C - 75°C
Life Time	10000000 times
Weight	<10g

Dimension of SLY-1535-40-C2:

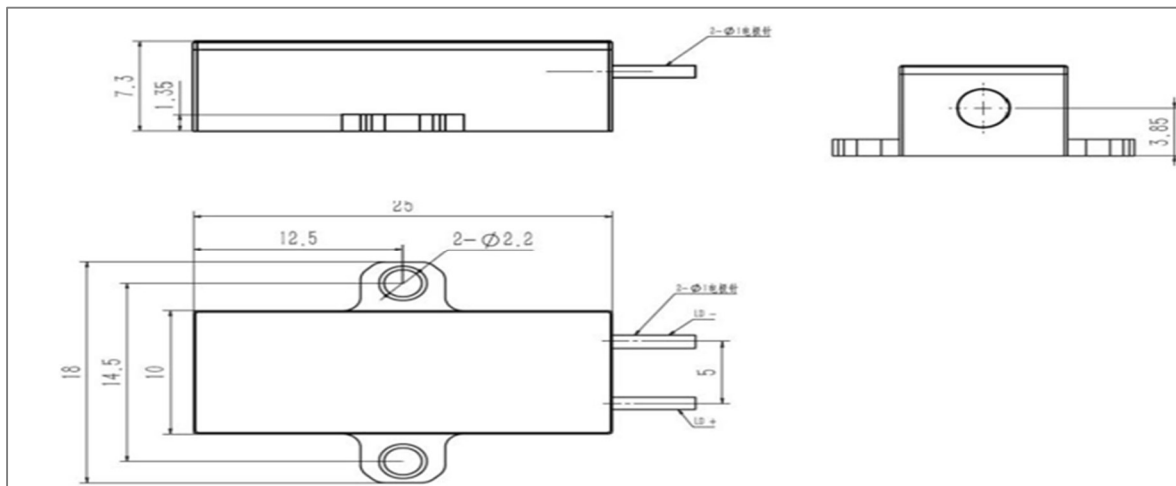


### 8. C3 Series Er Glass Lasers SLY-1535-xxx-C3



Parameters	SLY-1535-100-C3	SLY-1535-200-C3
Wavelength	1535nm	
Pulsed width (FWHM)	≤12ns	
Pulsed energy (μJ)	100	200
Peak Power (kw)	25	50
Energy Stability	≤5%	
Beam-divergence angle	≤0.5mrad	
Working Voltage	2V	
Working current (A)	6	12
Working Frequency	1Hz - 10Hz	
Pulsed Width	1ms - 2.5ms	
Working temperature	-45°C - 75°C	
Storage temperature	-50°C - 75°C	
Life Time	10000000 times	
Weight	<15g	

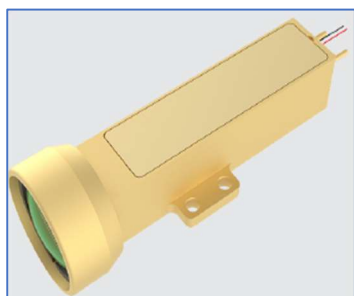
Dimension of SLY-1535-xxx-C3:



Remark:

xxx: pulsed energy ( $\mu\text{J}$ )

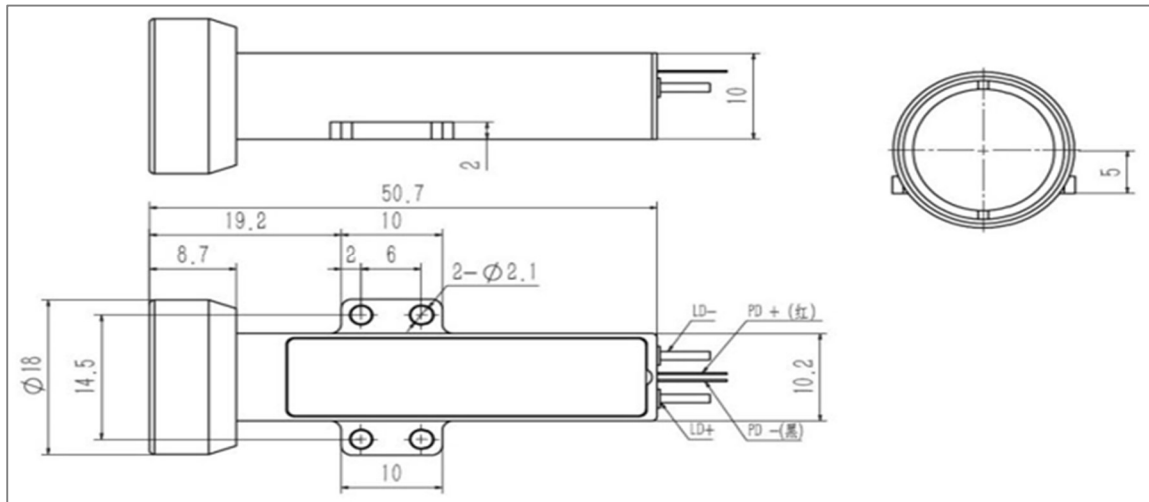
### 9. C7 Series Er Glass Lasers SLY-1535-xxx-C7



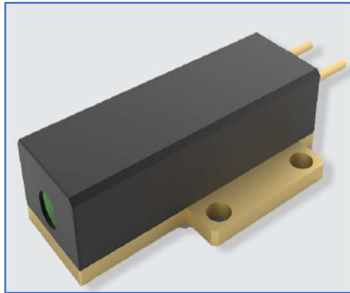
Parameters	SLY-1535-40-C7	
Wavelength	1535nm	
Pulsed width (FWHM)	3ns - 5ns	
Pulsed energy ( $\mu\text{J}$ )	400	500
Peak Power (kw)	80	100
Energy Stability	$\leq 5\%$	
Beam-divergence angle	$\leq 0.5\text{mrad}$	
Working Voltage	2V	
Working current (A)	15	18
Working Frequency	1-10Hz	
Pulsed Width	1-2.5ms	
Working temperature	$-40^{\circ}\text{C} - 65^{\circ}\text{C}$	
Storage temperature	$-50^{\circ}\text{C} - 75^{\circ}\text{C}$	
Life Time	10000000 times	
Weight	<30g	



Dimension of SLY-1535-xxx-C7:

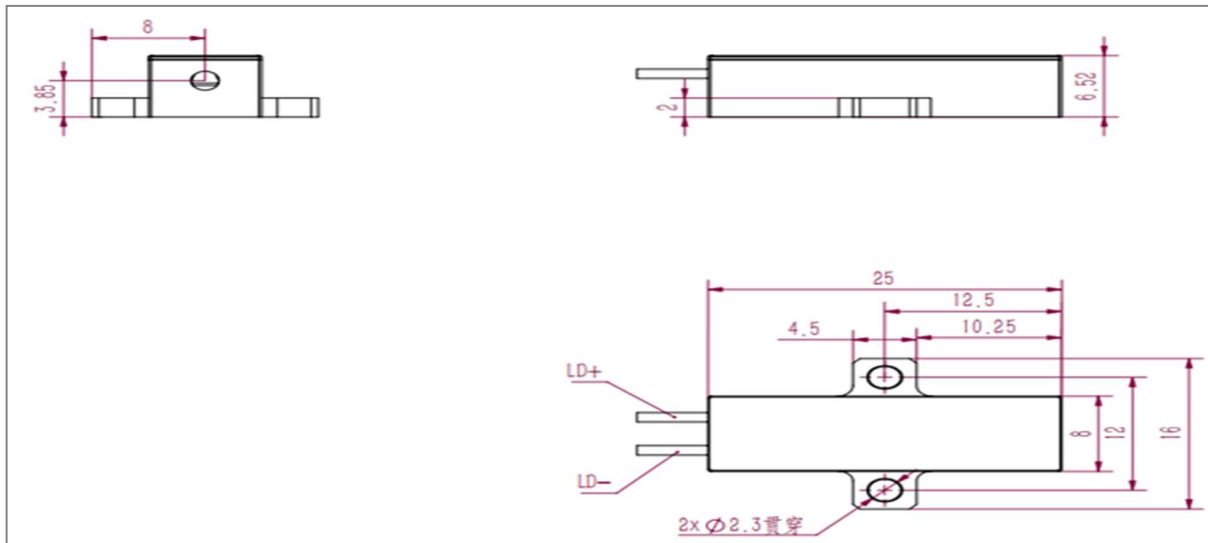


### 10. C9 Series Er Glass Lasers SLY-1535-xxx-C9



Parameters	SLY-1535-xxx-C9		
Wavelength	1535nm		
Pulsed width (FWHM)	4ns		
Pulsed energy (μJ)	100	200	300
Repeating Frequency	10Hz		
Peak Power (kw)	25	50	65
Energy Stability	≤5%		
Beam-divergence angle	≤12mrad		
Working Voltage	<2		
Working current (A)	6	12	14
Working temperature	-40°C - 65°C		
Storage temperature	-50°C - 75°C		
Life Time	10000000 times		
Weight	<15g		

Dimension of SLY-1535-xxx-C9:



**NOTE:**

1. Anti-static measures must be taken during transportation, storage and use.
2. Laser diode pins need to be protected by connecting short lines between them.
3. Laser window to ensure clean and pollution-free.
4. Use constant-current power supply to avoid peaks and surges when working.
5. The laser must be installed reliably when working.
6. Follow the operating instruction manual.
7. For other questions, please contact us.



## SED Series Erbium-doped Glass Microchip Lasers

### Parts Numbering Schema

Series – Wavelength – Pulse Energy – Pulse Width– Others

For example: SED-1535nm-100uJ-3.5ns, is a SED Erbium-doped laser with 1535nm wavelength, 100uJ Pulse energy and 3.5ns pulse width.

### 1. 100~300 $\mu$ J Erbium-doped glass laser, SED-1535nm-xxx-3.5ns

The erbium glass laser emits at an eye-safe wavelength of 1.54 $\mu$ m and offers high beam quality within the atmospheric window. With a pulse energy of 100-300  $\mu$ J, it is suitable for eye-safe laser ranging. This laser exhibits low power consumption, high peak power, narrow pulse width, compact size, and does not require temperature control. It has been proven to be a safe, efficient, and stable eye-safe laser solution.

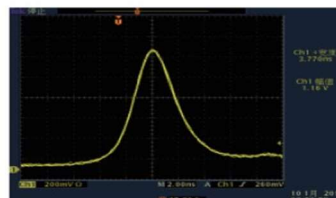


### Technical Specifications:

Part number	SED-1535nm-100uJ-3.5ns	SED-1535nm-200uJ-3.5ns	SED-1535-300uJ-3.5ns
Wavelength	1535nm	1535nm	1535nm
Pulse energy (Min/Typ.)	$\geq 100\mu$ J	$\geq 200\mu$ J	$\geq 300\mu$ J
Pulse width, Typ. (FWHM)	3.5ns	3.5ns	3.5ns
Pulse repetition rate	1~20Hz	1~10Hz	1~20Hz
Pulse stability	10%	10%	10%
Spots diameter	0.2mm	0.2mm	0.2mm
Beam divergence angle	10mrad	10mrad	10mrad
Spots mode	TEM00	TEM00	TEM00
Operating temperature	-45 °C~ +65°C	-45 °C~ +65°C	-45 °C~ +65°C
Storage temperature	-55 °C~ +85°C	-55 °C~ +85°C	-55 °C~ +85°C
Impact	1500G, 0.5ms	1500G, 0.5ms	1500G, 0.5ms
Vibration	20~2000 Hz/20G	20~2000 Hz/20G	20~2000 Hz/20G
Life span	>50 million shots	>50 million shots	>50 million shots
Dimension (mm)	25x8x7	25x8x7	25x8x7
Weight	8g	8g	8g
Voltage	2V	2V	2V
Current	6A	12A	12A
Pulse width	$\geq 2$ ms	$\geq 1.8$ ms	$\geq 2.5$ ms

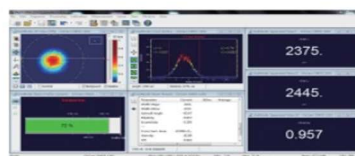
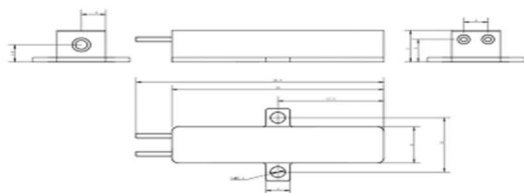
### Pin Descriptions

Pin	Function
1	Laser (+)
2	Laser (-)



Typical Pulse

### Mechanical Dimensions (mm)



Beam Profile

## 2. 500 $\mu$ J Erbium-doped glass laser, SED-1535nm-500uJ-5ns

The erbium glass laser emits at an eye-safe wavelength of 1.54 $\mu$ m and offers high beam quality within the atmospheric window. With a pulse energy of 500  $\mu$ J, it is suitable for eye-safe laser ranging. This laser exhibits low power consumption, high peak power, narrow pulse width, compact size, and does not require temperature control. It has been proven to be a safe, efficient, and stable eye-safe laser solution.

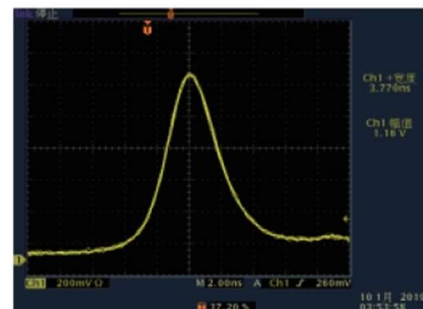


### Technical Specifications

Part number	SED-1535nn-500uJ-5ns
Wavelength	1535nm
Pulse energy (Min/Typ.)	$\geq 500\mu$ J
Pulse width, Typ. (FWHM)	5ns
Pulse repetition rate	1~10Hz
Pulse stability	10%
Spots diameter	0.3mm
Beam divergence angle	10mrad
Spots mode	TEM00
Operating temperature	-45 °C~ +65°C
Storage temperature	-55 °C~ +85°C
Impact	1500G, 0.5ms
Vibration	20~2000 Hz/20G
Life span	>50 million shots
Dimension (mm)	32x8x7
Weight	10g
Voltage	2V
Current	20A
Pulse width	$\geq 2.4$ ms

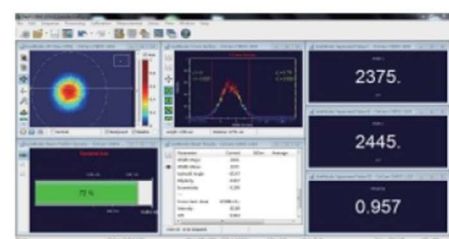
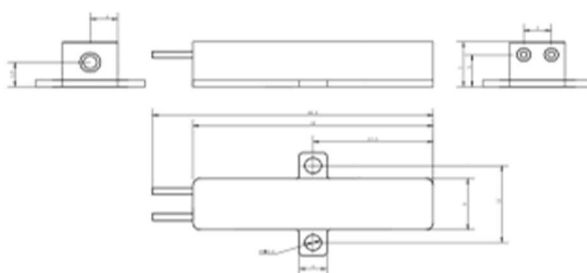
### Pin Descriptions

Pin	Function
1	Laser (+)
2	Laser (-)



Typical Pulse

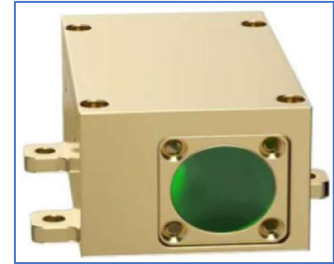
### Mechanical Dimensions (mm)



Beam Profile

### 3. 2mJ Erbium-doped Glass Laser, SED-1535nm-2mJ-11ns

This laser employs erbium glass as the active medium operating at a wavelength of 1.54  $\mu\text{m}$ . It offers a high photoelectric conversion efficiency, effectively converting electrical energy into laser power. With excellent optical performance and output stability, it consistently delivers pulse energy of over 2mJ. It is compact, lightweight, and excels in various fields such as scientific research, medical treatment, and industrial processing.

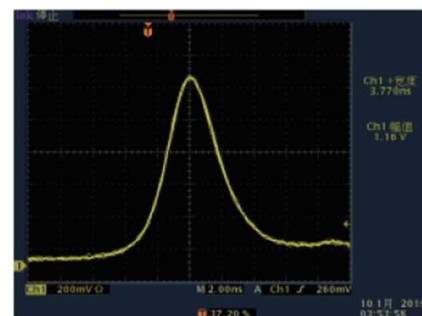


#### Technical Specifications

Part number	SED-1535nm-2mJ-11ns
Wavelength	1535nm
Pulse energy (Min/Typ.)	$\geq 2\text{mJ}$
Pulse width, Typ. (FWHM)	11ns
Pulse repetition rate	5Hz
Pulse stability	$\pm 5\%$
Spots diameter	0.5mm
Beam divergence angle	4mrad
Spots mode	TEM00
Operating temperature	$-45\text{ }^\circ\text{C} \sim +65\text{ }^\circ\text{C}$
Storage temperature	$-55\text{ }^\circ\text{C} \sim +85\text{ }^\circ\text{C}$
Impact	1500G, 0.5ms
Vibration	5~2000 Hz/20G
Life span	>50 million shots
Dimension (mm)	60x34x26
Weight	120g
Voltage	5V
Current	65A
Pulse width	$\geq 4\text{ms}$

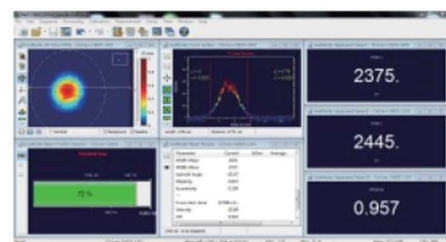
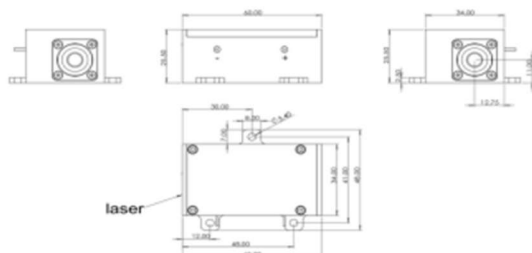
#### Pin Descriptions

Pin	Function
1	Laser (+)
2	Laser (-)



Typical Pulse

#### Mechanical Dimensions (mm)



Beam Profile